

ABSTRACT OF THE INVENTION

A family of p53 tumor suppressor nucleic acid and protein isolated from several insect species is described. The p53 nucleic acid and protein can be used to genetically modify metazoan invertebrate organisms, such as insects and worms, or cultured cells, resulting in p53 expression or mis-expression. The genetically modified organisms or cells can be used in screening assays to identify candidate compounds that are potential pesticidal agents or therapeutics that interact with p53 protein. They can also be used in methods for studying p53 activity and identifying other genes that modulate the function of, or interact with, the p53 gene. Nucleic acid and protein sequences for *Drosophila* p33 and Rb tumor suppressors are also described.